AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method for calibrating a sensing array used for marker localization, the sensing array including a plurality of sensing elements, the method comprising:

applying an excitation to at least one of said plurality of sensing elements of said sensing array used for marker localization;

analyzing the output of some or all of said plurality of sensing elements resulting from said excitation;

repeating said excitation and analyzing process for at least one of said plurality of sensing elements; and

determining corrections to a sensed signal based upon said analyzed outputs of said plurality of sensing elements.

2. (Previously Presented) The method of claim 1 wherein each sensing element has a corresponding preamplifier wherein the corresponding preamplifier reduces capacitive loading on each sensing element.

3. (Original) The method of claim 1 wherein said corrections are applied to the outputs of said sensing array during marker localization.

4. (Original) The method of claim 2 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said excitation of one of said plurality of sensing elements includes applying an exciting voltage sequentially to said first and second amplification elements.

5. (Original) The method of claim 2 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said excitation of one

of said plurality of sensing elements includes applying an exciting current sequentially to said first and second amplification elements.

6. (Currently Amended) The method of Claim 1 wherein said excitation is applied to less than all of ~~sense coils~~sensing element in said sensing array.

7. (Original) The method of Claim 1 wherein said excitation is a voltage to said sensing element.

8. (Original) The method of Claim 1 wherein said excitation is a current to said sensing element.

9. (Original) The method of Claim 7 wherein said voltage is a sinusoidal wave.

10. (Original) The method of Claim 8 wherein said current is a sinusoidal wave.

11. (Original) The method of Claim 1 further wherein the calibrating method is interleaved between marker localization operations.

12. (Previously Presented) A method for calibrating a sensing array used for marker localization, the sensing array including a plurality of sensing elements, said plurality of sensing elements including a calibration subset selected from said plurality of sensing elements, comprising:

applying an excitation to one of said plurality of sensing elements in said calibration subset of said sensing array used for marker localization;

analyzing the output of some or all of said plurality of sensing elements resulting from said excitation;

repeating said excitation and analyzing process for at least one of the sensing elements in said calibration subset; and

determining corrections to a sensed signal based upon said analyzed outputs.

13. (Previously Presented) The method of claim 12 wherein each sensing element has a corresponding preamplifier wherein the corresponding preamplifier reduces capacitive loading on each sensing element.

14. (Original) The method of claim 12 wherein said corrections are applied to the outputs of said sensing array during marker localization.

15. (Original) The method of claim 13 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said excitation of at least one of said plurality of sensing elements includes applying an exciting voltage sequentially to said first and second amplification elements.

16. (Original) The method of claim 13 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said excitation of at least one of said plurality of sensing elements includes applying an exciting current sequentially to said first and second amplification elements.

17. (Original) The method of Claim 12 wherein said excitation is a sinusoidal voltage to said sensing element.

18. (Previously Presented) The method of Claim 12 wherein said excitation is a sinusoidal current to said sensing element.

19. (Previously Presented) The method of Claim 12 wherein an excitation is applied to more than one of said plurality of sensing elements simultaneously.

20. (Previously Presented) The method of Claim 12 further wherein the calibrating method is interleaved between marker localization operations.

21. (Previously Presented) A method for calibrating a sensing array used for marker localization, the sensing array including a plurality of sensing elements, said plurality of sensing elements including a calibration subset selected from said plurality of sensing elements, comprising:

applying a voltage excitation to one of said plurality of sensing elements in said calibration subset of said sensing array used for marker localization;

analyzing the output of some or all of said plurality of sensing elements resulting from said excitation;

repeating said voltage excitation and analyzing process for at least one of the sensing elements in said calibration subset; and

determining corrections to a sensed signal based upon said analyzed outputs.

22. (Previously Presented) The method of claim 21 wherein each sensing element has a corresponding preamplifier wherein the corresponding preamplifier reduces capacitive loading on each sensing element.

23. (Original) The method of claim 21 wherein said corrections are applied to the outputs of said sensing array during marker localization.

24. (Original) The method of claim 21 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said voltage excitation of at least one of said plurality of sensing elements includes applying an exciting voltage sequentially to said first and second amplification elements.

25. (Original) The method of Claim 21 wherein said voltage excitation is a sinusoidal wave.

26. (Original) The method of Claim 21 wherein said calibration subset includes all of said plurality of sensing elements.

27. (Original) The method of Claim 21 wherein a voltage excitation is applied to more than one of said plurality of sensing elements simultaneously.

28. (Original) The method of Claim 21 further wherein the calibrating method is interleaved between marker localization operations.

29. (Previously Presented) An apparatus for calibrating a sensing array used for marker localization, the sensing array including a plurality of sensing elements, said plurality of sensing elements including a calibration subset selected from said plurality of sensing elements, comprising:

a source for applying an excitation to one of said plurality of sensing elements in said calibration subset of said sensing array used for marker localization;

means for analyzing the output of some or all of said plurality of sensing elements resulting from said excitation;

means for repeating said excitation and analyzing process for each of the sensing elements in said calibration subset; and

means for determining corrections to a sensed signal based upon said analyzed outputs.

30. (Original) The apparatus of claim 29 wherein each sensing element has a corresponding preamplifier.

31. (Original) The apparatus of claim 29 wherein said corrections are applied to the outputs of said sensing array during marker localization.

32. (Original) The apparatus of claim 30 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said excitation of at least one of said plurality of sensing elements includes applying an exciting voltage sequentially to said first and second amplification elements.

33. (Original) The apparatus of claim 30 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said excitation of at least one of said plurality of sensing elements includes applying an exciting current sequentially to said first and second amplification elements.

34. (Original) The apparatus of Claim 29 wherein said excitation is a sinusoidal voltage to said sensing element.

35. (Original) The apparatus of Claim 29 wherein said excitation is a sinusoidal current to said sensing element.

36. (Original) The apparatus of Claim 29 wherein an excitation is applied to more than one of said plurality of sensing elements simultaneously.

37. (Previously Presented) The apparatus of Claim 29 further wherein a calibrating method is interleaved between marker localization operations.

38. (Previously Presented) A method for calibrating multiple sensing arrays, each sensing array used for marker localization, each sensing array including a plurality of sensing elements, said plurality of sensing elements including a calibration subset selected from said plurality of sensing elements, comprising:

for one of said sensing arrays:

(a) applying an excitation to one of said plurality of sensing elements in said calibration subset of said sensing array used for marker localization;

(b) analyzing the output of some or all of said plurality of sensing elements resulting from said excitation;

(c) repeating said excitation and analyzing process for at least one of the sensing elements in said calibration subset; and

(d) determining noise corrections based upon said analyzed outputs; and

using said noise corrections determined for said one of said sensing arrays in the other sensing arrays.

39. (Original) The method of Claim 38 wherein said excitation is a sinusoidal voltage to said sensing element.

40. (Original) The method of Claim 38 wherein said excitation is a sinusoidal current to said sensing element.

41. (Original) The method of Claim 38 wherein an excitation is applied to more than one of said plurality of sensing elements simultaneously.

42. (Previously Presented) A method for calibrating a sensing array used for marker localization, the sensing array including a plurality of sensing elements, said plurality of sensing elements including a calibration subset selected from said plurality of sensing elements, comprising:

applying a current excitation to one of said plurality of sensing elements in said calibration subset of said sensing array used for marker localization;

analyzing the output of some or all of said plurality of sensing elements resulting from said excitation;

repeating said current excitation and analyzing process for at least one of the sensing elements in said calibration subset; and

determining corrections to a sensed signal based upon said analyzed outputs.

43. (Previously Presented) The method of claim 42 wherein each sensing element has a corresponding preamplifier wherein the corresponding preamplifier reduces capacitive loading on each sensing element.

44. (Original) The method of claim 42 wherein said corrections are applied to the outputs of said sensing array during marker localization.

45. (Original) The method of claim 43 wherein said preamplifier is a differential amplifier having first and second amplification elements, wherein said current excitation of at least one of said plurality of sensing elements includes applying an exciting current sequentially to said first and second amplification elements.

46. (Original) The method of Claim 42 wherein said current excitation is a sinusoidal wave.

47. (Original) The method of Claim 42 wherein said calibration subset includes all of said plurality of sensing elements.

48. (Original) The method of Claim 42 wherein a current excitation is applied to more than one of said plurality of sensing elements simultaneously.

49. (Original) The method of Claim 42 further wherein the calibrating method is interleaved between marker localization operations.